

Claims

1. A magnetic recording medium, comprising:

a substrate;

a seedlayer disposed on the substrate, wherein the seedlayer comprises a Cr-X containing material; and

a magnetic layer,

wherein a solid solubility of said X is at least 3 atomic percent in Cr.

2. The magnetic recording medium of claim 1, further wherein a heat of

oxide formation of said X is less than that of Cr and a lattice tuning capability of said X is at least 2% that of Cr.

3. The magnetic recording medium of claim 1, wherein said X is selected from the group consisting of aluminum, calcium, titanium, vanadium, manganese, iron, cobalt, nickel, zinc, or a mixture thereof.

4. The magnetic recording medium of claim 1, wherein a portion of the seedlayer is oxidized.

5. The magnetic recording medium of claim 1, further comprising an underlayer comprising a Cr-containing material.

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6. The magnetic recording medium of claim 4, wherein the oxidized portion of the seedlayer contains from about 0.0001 atomic percent oxygen to about 20 atomic percent oxygen.

7. The magnetic recording medium of claim 4, wherein the oxidized portion of the seedlayer contains from about 0.01 atomic percent oxygen to about 0.9 atomic percent oxygen.

8. The magnetic recording medium of claim 1, further optionally comprising a CoCr-containing underlayer, wherein the seedlayer has a Cr-X (110) interplanar spacing that is roughly equivalent to a (0002) interplanar spacing of a HCP alloy within the CoCr-containing underlayer or the magnetic layer.

9. The magnetic recording medium of claim 1, further comprising a CoCr-containing underlayer to form a first magnetic recording medium, the first magnetic recording medium exhibiting a stronger CoCr (11.0) peak by X-ray crystallography than that of a second magnetic recording medium that is similar to the first magnetic recording medium except that the seedlayer of the second magnetic recording medium contains substantially pure Cr.

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10. The magnetic recording medium of claim 9, wherein the seedlayer of the first magnetic recording medium comprises Cr-10W and the CoCr-containing underlayer comprises Co-37Cr.

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11. A method of manufacturing a magnetic recording medium, comprising:
depositing a seedlayer comprising a Cr-X containing material on a substrate;
and
depositing a magnetic layer on the seedlayer,
wherein a solid solubility of said X is at least 3 atomic percent in Cr.

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12. The method of manufacturing a magnetic recording medium of claim 11, further wherein a heat of oxide formation of said X is less than that of Cr and a lattice tuning capability of said X is at least 2% that of Cr.

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13. The method of manufacturing a magnetic recording medium of claim 11, wherein said X is selected from the group consisting of aluminum, calcium, titanium, vanadium, manganese, iron, cobalt, nickel, zinc, or a mixture thereof.

14. The method of manufacturing a magnetic recording medium of claim 11, further comprising oxidizing a portion of the seedlayer to form an oxidized portion.

15. The method of manufacturing a magnetic recording medium of claim 11, further comprising depositing an underlayer comprising a Cr-containing material between the seedlayer and the magnetic layer.

16. The method of manufacturing a magnetic recording medium of claim 14, wherein the oxidized portion of the seedlayer contains from about 0.01 atomic percent oxygen to about 0.9 atomic percent oxygen.

17. The method of manufacturing a magnetic recording medium of claim 14, wherein the oxidized portion of the seedlayer has a mean grain size diameter of 10 nm or less.

18. The method of manufacturing a magnetic recording medium of claim 11, further optionally depositing a CoCr-containing underlayer between the seedlayer and the magnetic layer, wherein the seedlayer has a Cr-X (110) interplanar spacing that is roughly equivalent to a (0002) interplanar spacing of a HCP alloy within the CoCr-containing underlayer or the magnetic layer.

19. The method of manufacturing a magnetic recording medium of claim 11, further comprising depositing a CoCr-containing underlayer to form a first magnetic recording medium, the first magnetic recording medium exhibiting a stronger CoCr

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(11.0) peak by X-ray crystallography than that of a second magnetic recording medium that is manufactured similarly to the first magnetic recording medium except that the seedlayer of the second magnetic recording medium contains substantially pure Cr.

20. A magnetic recording medium comprising:
means for low noise recording and
a magnetic layer.

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